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PROPER USE OF THE NAME NYMPHAEA

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THE European white and yellow waterlilies, being the two most conspicuous and handsome water plants in Europe, have naturally always been very favorite objects for illustration and description. Commencing with the earlier botanical printed works and coming down to the present time, we find them both constantly illustrated and described.

Conard (Monograph of the Genus *Nymphaea* 1905) devotes some twenty-three pages to the early history of these plants. His treatment is very far indeed from being exhaustive, but is an aid in arriving at some knowledge of the earlier views concerning these plants.

What one is most impressed by is that practically all early authors treated the two plants together, and that when the idea of a scientific treatment of plants began to prevail, the two plants were almost invariably treated as constituting the one genus *NYMPHAEA*. This treatment was continued by Linnaeus, and prevailed after his time until the early years of the nineteenth century. Then suddenly everyone seems to have become convinced that the two plants belonged to different genera, and everyone since has thoroughly agreed in this view. The remarkable thing is that it took so long to get two such well-marked genera established.

However, one most excellent botanist before the time of Linnaeus had separated the two plants into different genera. I refer to the eminent Dutch botanist Hermann Boerhaave, for whom the genus *Boerhaavia* was named.¹ He, in the year 1720, confined the generic

¹ It may interest American botanists to know that not long ago the twelve volumes of that most celebrated work of the Dutch botanists, Rheedee van Draakenstein Hortus Indicus Malabaricus, were sent to me by an English book firm widely renowned for its knowledge of literature. These books bear

name *NYMPHAEA* to the yellow water-lilies, and for the white water-lilies established and fully described the genus *Leuconymphaea* (Index alt. Pl. Hort. Acad. Lugd.-Bat. 1: 281). His views were not generally followed, altho they were by Ludwig in 1737.

As is well-known, Boerhaave was a great friend and benefactor of Linnaeus (Jackson, Linnaeus 144-5, 164) and their relations were very close and intimate. Hence Boerhaave's writings and views were of course very well-known indeed to Linnaeus, and when in 1737 Linnaeus issued the first edition of his *Genera Plantarum*, we find him describing his genus *NYMPHAEA* as follows:

"*NYMPHAEA*.* *Tournef.* 137. 138. *Nelumbo* H. P. B. 205. 421.

CAL: *Perianthium* pentaphyllum, tetraphyllumve, magnum, coloratum, persistens.

COR: *Petala* numerosa (quindecim saepe) calyce minora, germinis lateri insidentia, serie plusquam simplici.

STAM: *Filamenta* numerosa (septuaginta saepe) plana, incurva, brevia. *Antherae* oblongae, filamentorum margini adnatae.

PIST: *Germen* ovatum, magnum. *Stylus* nullus. *Stigma* orbiculatum, planum, peltato, sessile, radiis notatum, margine crenatum, persistens.

PER: *Bacca* ovata, carnosâ, rudis, collo angustata, apice coronata, multilocularis (decem ad quindecim-loculis) pulpâ plena.

SEM: plurima, subrotunda.

OBS: Calyx & Corolla quoad numerum & figuram incerta sunt, hinc. *Nymphaea Boerh.* calyce pentaphyllo, foliolis subrotundis, petalis minimis.

Leuconymphaea Boerh. calyce tetraphyllo, foliolis ovatis, corollam vix superantibus.

Nelumbo Tournef. Pericarpium collum minus contractum, & loculamenta nulla."¹

In the 1743 Paris edition treated by Linnaeus as Ed. 3, the reference to *Nelumbo* was changed to read

"*Nelumbo Tournef.* Pericarpium turbinatum truncatum, loculis monospermis, propriis foraminibus per discum stigmatidis dehiscentibus."

In Ed. 5 for "*Nymphaea Boerh.*," "*Leuconymphaea Boerh.*," and "*Nelumbo Tournef.*," Linnaeus substituted² "*N. lutea*," "*N. alba*"

an annotation that they were purchased "at the auction of Dr. Boerhaave's works" and brought to England. The first ten volumes had previously belonged to J. Commelin, the principal author of the work, and several contain his signature. The last two volumes issued after his death have very slightly different binding than the others.

¹ Linnaeus, Gen. Pl. (Ed. 1) 149 1737; Linnaeus, Gen. Pl. (Ed. 2) 225 1742.

² Linnaeus, Gen. Pl. (Ed. 5) 227 1754.

and "Nelumbo," respectively, leaving the observations under each unchanged.

These I believe comprise all the changes made by Linnaeus before 1764 with the exception of typographical changes.

In *Genera Plantarum* Ed. 6 p. 264 (1764), however, a very radical change was made and the generic description was changed to read:

"653. NYMPHAEA.* *Tournef.* 137. 138. Nelumbo *Tournef.*

CAL. *Perianthium* inferum, tetraphyllum, magnum, supra coloratum, persistens.

COR. *Petala* numerosa (quindecim saepe), germinis lateri insidentia, serie plus quam simplici.

STAM: *Filamenta* numerosa (septuaginta saepe), plana, curva, obtusa, brevia. *Antherae* oblongae, filamentorum margini adnatae.

PIST: *Germen* ovatum, magnum. *Stylus* nullus. *Stigma* orbiculatum, planum, peltato-sessile, radiis notatum, margine crenatum, persistens.

PER: *Bacca* dura, ovata, carnosae, rudis, collo angustata, apice coronata, multilocularis (decem ad quindecim-loculis), pulpa plena.

SEM: plurima, subrotunda.

N. lutea *Calyce* pentaphyllo; *foliis* subrotundis, *Petalis* minimis a reliquis differt.

Nelumbo *Pericarpium* turbinatum, truncatum, *loculis* monospermis, *propriis* *foraminibus* per *discum* *dehiscentibus*."

It will be seen from the above that when Linnaeus took up the name *Nymphaea* in 1737, he at the same time took up Boerhaave's view that the yellow water lily was typical of the genus and that both the white water lily and *Nelumbo* differed in the particulars indicated. His account of certain parts of the flower in his description of the genus in the first five editions of the *Genera Plantarum* began with certain phrases applicable only to the yellow water lily. There can be no doubt that during all this time Linnaeus had Boerhaave's views in mind and that the yellow water lily is the type of the genus *Nymphaea*.

In the sixth edition of the *Genera Plantarum*, as quoted above, Linnaeus changed his generic conception. He changed his description, leaving out parts which referred to the yellow water lily and adding a statement showing that it differed from the other species treated. However, this is self-evidently a different generic conception than the one in the earlier editions, and we must deal with his genus as first established and not as afterwards changed. American botanists have had similar cases to deal with in connection with the changes made by him in his specific descriptions of *Rosa carolina* and *Eupatorium*

purpureum, and have followed his original descriptions and not his changed descriptions.

As stated before, Conard in his Monograph of *Nymphaea*, gave a long history of the early use of the name *Nymphaea*, but the important and fundamental work of Boerhaave was altogether omitted. Later he discussed the use of the name *Nymphaea* (*RHODORA* 18: 161–4 1916) and his discussion was supplemented by Fernald (*RHODORA* 21: 183–8 1919), but neither of them in any way referred to or considered the facts about *Leuconymphaea* here discussed. This is all the more remarkable because E. L. Greene, whose papers on the subject were referred to by Conard, cites Boerhaave's work (*Bull. Torr Club* 14: 179 1887), although he does not refer to its use by Linnaeus. It is very evident that their conclusions, not being based on the facts, cannot be accepted. We must use the name *Nymphaea* for the yellow water lilies, and for the white water lilies must use *Castalia*, the name given to the genus by Salisbury—who first of later day botanists definitely separated the two genera.

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A TERATOLOGICAL FORM OF *VACCINIUM PENNSYLVANICUM*.—In the course of working over some unmounted material from the herbarium of Dr. George G. Kennedy, there was found a specimen of a very curious form of *Vaccinium pennsylvanicum*. I cannot do better than to quote Dr. Kennedy's manuscript account of it, found with the specimen.

“Abnormal Vacc. Pennsylv. 2 scaly bracted racemes: each with 6 flowers. The urceolate gamopetalous five-toothed corolla of the species is in this a completely five-parted corolla in various stages of separation.

“Six flowers of the twelve have the petals separate completely down to the base of the teeth of the short adnate calyx: these corolla-lobes are flat, linear, acute, with a plainly marked thin translucent edge showing the line of fissure. 2 flowers have a bilabiate corolla, of two, and three united petals: one flower has the corolla-lobes separated, but each division cymbiform instead of flat. One flower has the corolla-lobes tubular or nearly so from the complete involution of the petals. One flower has the petals separate, involute and united at their tips with a curve like the ripe capsule of the peculiar genus